



**Superior
Energy
Performance®**
U.S. DEPARTMENT OF ENERGY

2017 Superior Energy Performance® Program Update

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U.S. DEPARTMENT OF
ENERGY

Verification of ISO 50001 through Superior Energy Performance® (SEP™) Certification

- A voluntary continual energy performance improvement certification program recognizing excellence in organizational energy management practices.
- SEP certification based upon third-party verification of:
 - Energy management system (ISO 50001) and
 - Energy performance improvement (ANSI/MSE 50021)



Verified Results in using ISO 50001

Through DOE's Superior Energy Performance...

- Achieving up to \$1 million in annual savings
- Significant savings from operational improvements with no capital investment
- Reducing carbon emissions, with third-party verified energy performance improvement
- Savings found to be almost double corporate business as usual



NISSAN

3M



Schneider
Electric

LAND O'LAKES, INC.



BRIDGESTONE
Your Journey, Our Passion

Coca-Cola

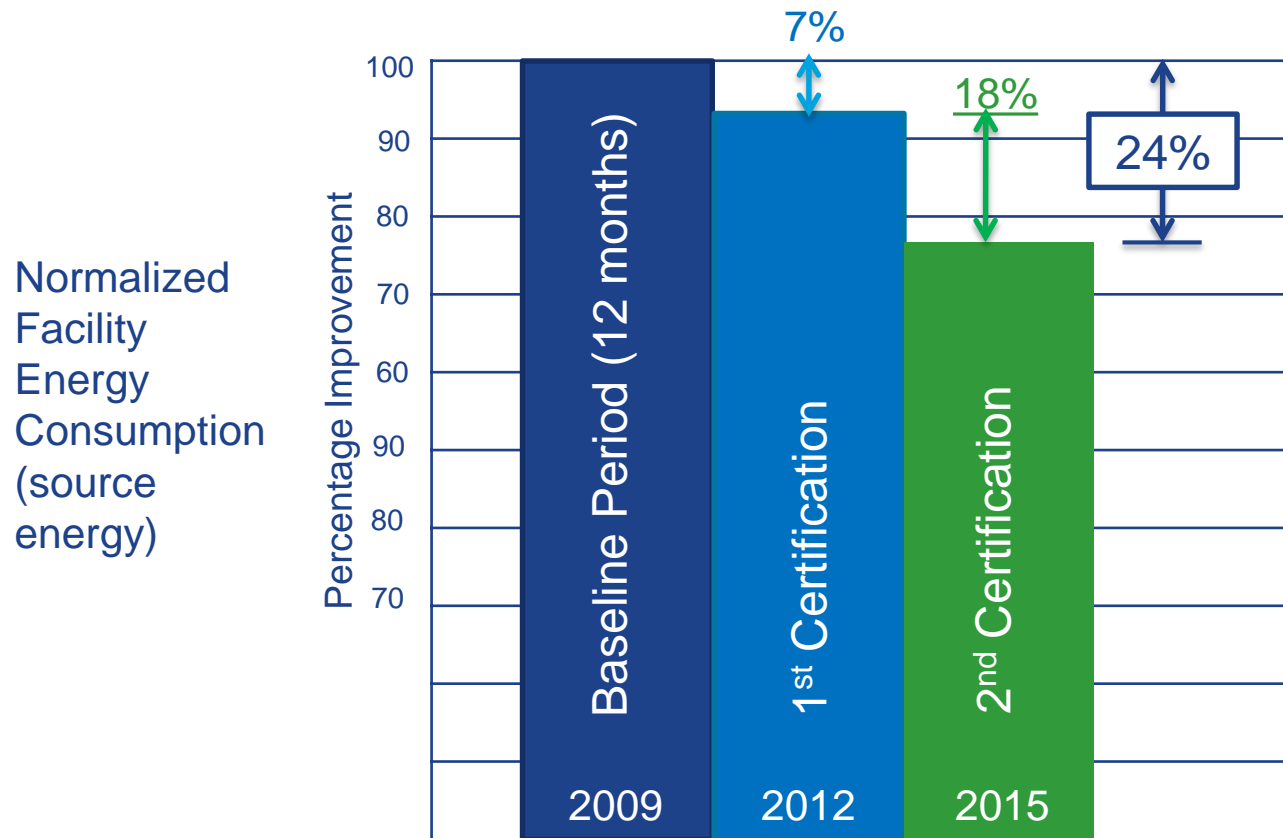


Rexroth
Bosch Group

CURTISS
WRIGHT

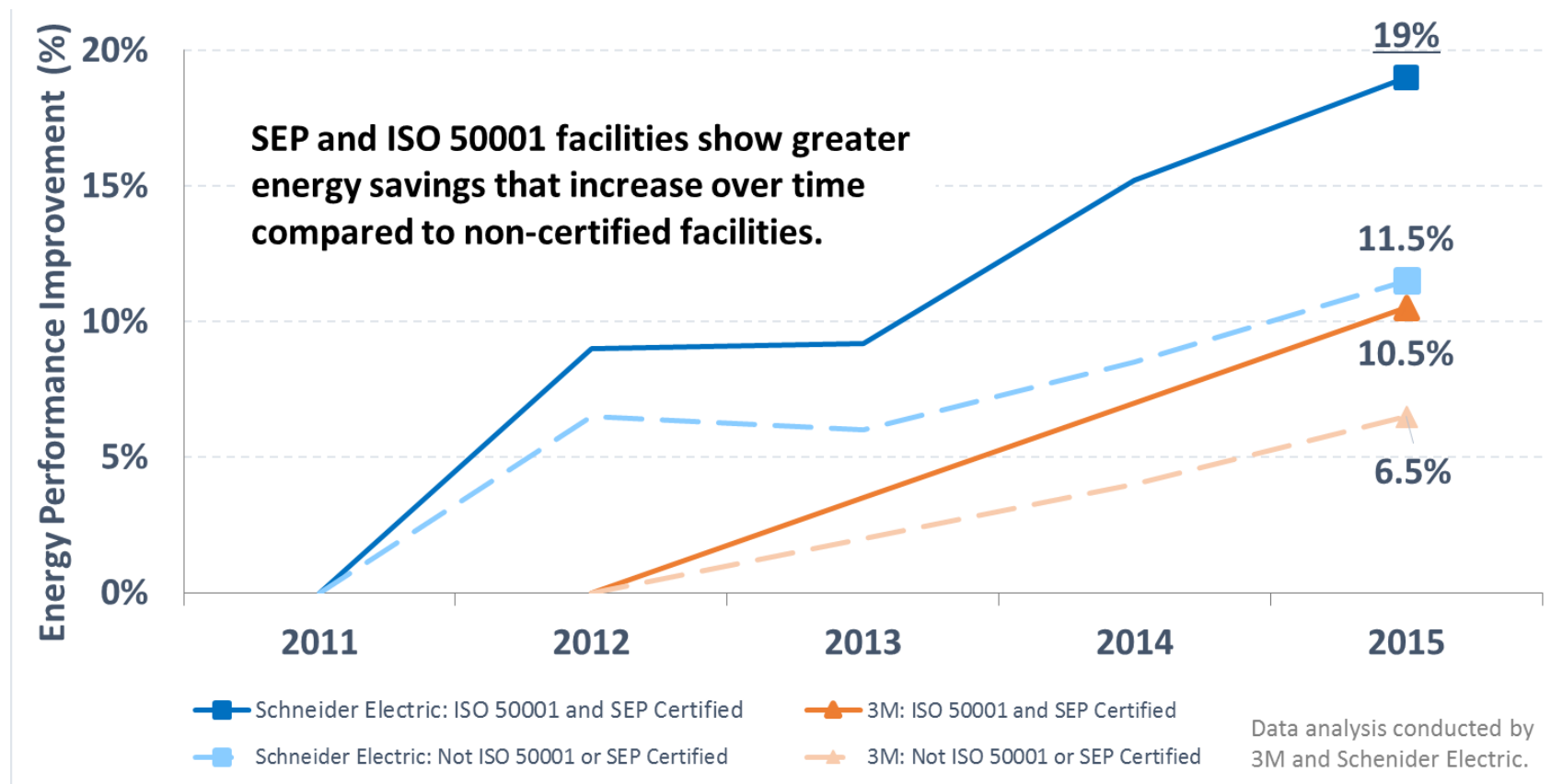


Recertified Facilities Show Continual Energy Performance Improvement



Nissan – Smyrna, TN facility

ISO 50001 and SEP Certified Facilities Outperform Company Peers



Savings at certified facilities greater on average compared to non-certified facilities:



- **3M: 62% greater over 3 years:** 18 ISO 50001 certified sites across 7 countries; 2 US SEP, 1 Korea SEP certified; 257 non-ISO 50001
- **Schneider Electric: 65% greater over 4 years:** 20 ISO 50001 certified in North America; 16 US SEP certified; 30 non-ISO 50001

SEP Certified Facilities and Verified Energy Performance Improvement

★ Platinum certified
★ Gold certified
★ Silver certified

Improvement over 3 years unless stated otherwise

	★ Saanichton, BC Canada	30.6%
	★ Smyrna, TN	23.1%
	★ Clovis, CA	16.7%
	★ Seneca, SC	15.6%
	★ Costa Mesa, CA	23.4% / 15 mo's
	★ West Kingston, RI	20.0%
	★ Apodaca, Mexico (Monterrey 4)	15.0%
	★ Peru, IN	24.9% / 10 yrs
	★ Lincoln, NE	22.0% / 10 years
	★ El Paso, TX	14.8%
	★ Greensboro, NC	13.7% / 16 mo's
	★ Columbia, MO	13.3% / 1 yr
	★ Apodaca, Mexico (Monterrey 2)	11.3%
	★ Hopkins, SC	10.2%
	★ Tijuana, Mexico	10.2%
	★ Cedar Rapids, IA	8.8%
	★ Apodaca, Mexico (Monterrey 3)	7.8%
	★ Foxboro, MA	6.7%
	★ Lexington, KY	5.9%
	★ Rojo Gomez, Mexico	5.9%

	★ Aberdeen, SD	11.0%
	★ Hutchinson, MN	10.7%
	★ Cynthia, KY	6.9%
	★ Cordova, IL	5.7%
	★ Decatur, AL	5.2%
	★ Prairie du Chien, WI	5.2%
	★ San Diego, CA	22.7%
	★ La Quinta, CA	17.6%
	★ Washington, DC	15.9%
	★ Waikoloa, HI	13.5%
	★ Honolulu, HI	8.4%
	★ San Francisco, CA	6.3%

SEP Certified Facilities (cont'd) and Verified Energy Performance Improvement

★ Platinum certified
★ Gold certified
★ Silver certified

Improvement over 3 years unless stated otherwise

	★ Mack Trucks, Macungie, PA	31.6% / 10 yrs
	★ Dublin, VA	28.4% / 10 yrs
	★ Hagerstown, MD	20.9%
	★ Canton, MS	20.9%
	★ Smyrna, TN	17.7%
	★ Decherd, TN	8.0%
	★ Columbus, IN	16.8%
	★ Whitakers, NC	15.5% / 7 yrs
	★ Detroit, MI	32.5% / 10 yrs
	★ Ontario, NY	25.7% / 5 yrs
	★ Bethlehem, PA	17.0%
	★ Washington, DC	16.5%
	★ Dunedin, FL	12.2% / 2 yrs
	★ Wilson, NC	15.1% / 10 yrs
	★ Gaithersburg, MD	8.5%
	★ Cheswick, PA	7.6%
	★ Carlisle, PA	5.7%

Last updated: April 11, 2017

SEP Enterprise-Wide

SEP isn't limited to single facilities. Companies can implement SEP across multiple facilities to benefit from economies of scale.

Improvements per site

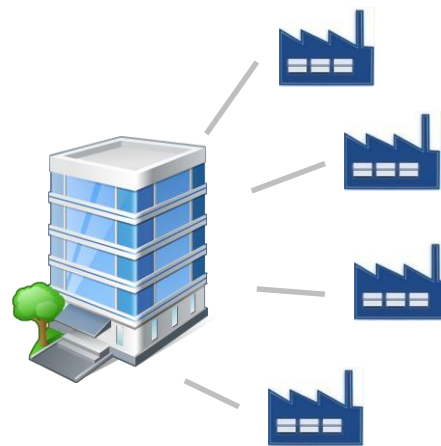
- 5% annual energy performance
- >\$600,000 energy cost savings
- \$19,000 implementation cost reduction

Central office

- Consolidates and coordinates the work of implementing the ISO 50001 EnMS
- Disseminates best practices to facilities
- Works with facility staff – reduce level of effort & auditing costs per facility

Results from 31 facilities across North America from 4 companies:

- 3M Company
- Nissan North America
- Cummins
- Schneider Electric



Facilities

- Enjoy the benefits of ISO 50001
- Leverage central office expertise
- Knowledge transfer among peer facilities

SEP Expansion

Organizations beyond industrial are using ISO 50001 and SEP to achieve energy and savings goals.

- SEP-Certified Commercial Buildings

- Hilton

- San Diego Bayfront, San Diego, CA
 - Washington Hilton, Washington, DC
 - Hilton Waikoloa Village, Waikoloa, HI
 - Hilton Hawaiian Village Waikiki Beach Resort, Honolulu, HI
 - Hilton San Francisco Union Square, San Francisco, CA
 - Waldorf Astoria La Quinta Resort & Club, La Quinta, CA

- Marriott

- JW Marriott Hotel, Washington, DC

- Water/wastewater Pilots

- Delta Diablo, Antioch, CA
 - Victor Valley, Victorville, CA
 - Alexandria Renew Corporation, Alexandria, VA
 - Des Moines Water, Des Moines, IA
 - Kent County Water/WWT, Dover, DE
 - City of Laredo, Laredo, TX
 - Utilities, Inc., Charlotte, NC

- Federal agency and facility pilots

- Tinker Air Force Base
 - National Renewable Energy Lab
 - Lawrence Berkeley National Lab

End-User Feedback Enables Further Expansion of SEP

- DOE engages SEP users to understand the impact of SEP at their facilities and organizations.
- Revisions to SEP are based on stakeholder insights and intended to enhance user experiences and position the program for future growth.
- DOE is pleased to offer SEP 2017 in response to the feedback provided by participating facilities!

SEP 2017 Program Requirements

SEP 2017 Program Update

SEP program requirements and documents have been updated! Organizations currently have the option of using **SEP 2012** or **SEP 2017** for initial certification or recertification.

SEP 2012 – Existing program

Features

- ISO 50001 + energy performance improvement (key requirements in each SEP version)
- Two pathways:
 - Energy Performance
 - Mature Energy (energy performance improvement plus SEP Scorecard)
- Three performance levels in each pathway: Platinum, Gold, and Silver

SEP 2017 – Updated program

Features

- Single, unified scoring system
- Flexibility in setting baseline to align with corporate or enterprise approach
- Four performance levels: Platinum, Gold, Silver, and new Bronze level with lower threshold for energy performance improvement
- Sustainable recertification energy performance levels

SEP Requirements: 2017 Update

DOE is refining SEP to improve and simplify the program based on experiences and feedback to date. SEP 2017 improvements include:

- **Single, unified scoring system and qualification pathway** combines best features of the Energy Performance and Mature Energy Pathways
- Provide **flexibility in setting facility baseline year to align with corporate or enterprise**; enable companies to more easily expand SEP participation across facilities
- **Motivate plants to enhance energy management programs** through use of the Scorecard at Gold and Platinum levels
- **For recertification, provide practical and flexible energy performance improvement requirement** that is sustainable over multiple certification cycles

Certification to updated program design

- Updated SEP standards and protocols and peer reviewed
- 2012 program will continue to be available during a transition period

SEP 2017 Requirements

Initial Certification

SEP - Initial Certification

Performance Levels



**ISO 50001
certification**



**Verified
energy
performance
improvement**

SEP 2012 program will
continue to be available until
June 2019.

Achievement period	Performance Levels			
	Bronze	Silver	Gold	Platinum
	Energy Performance Improvement			
12-36 months (1-3 yrs)	1%		5%	
37-48 months (~3-4 yrs)	N/A		7%	
49-60 months (~4-5 yrs)	N/A		8%	
61-72 months (~5-6 yrs)	N/A		10%	
73-84 months (~6-7 yrs)	N/A		12%	
85-96 months (~7-8 yrs)	N/A		13%	
97-108 months (~8-9 yrs)	N/A		15%	
109-120 months (~9-10 yrs)	N/A		16%	
			+ 40 SEP Scorecard credit points, including: 20 points for Energy Management System	+ 60 SEP Scorecard credit points, including: 35 points for Energy Management System - and - 10 points for Advanced Practices and Additional Energy Performance

SEP 2017 Requirements Recertification

SEP - Recertification



**ISO 50001
certification**



**Verified
energy
performance
improvement**

SEP 2012 will continue to be
available until June 2019.

Performance Levels

	Bronze	Silver	Gold	Platinum
Achievement period	Energy Performance Improvement			
12-36 months (1-3 yrs)	1%	3%		
37-48 months (~3-4 yrs)	1% over most recent 3 years	3% over most recent 3 years		
49-60 months (~4-5 yrs)	1% over most recent 3 years	3% over most recent 3 years		
61-72 months (~5-6 yrs)	1% over most recent 3 years	3% over most recent 3 years		
73-84 months (~6-7 yrs)	1% over most recent 3 years	3% over most recent 3 years		
85-96 months (~7-8 yrs)	1% over most recent 3 years	3% over most recent 3 years		
97-108 months (~8-9 yrs)	1% over most recent 3 years	3% over most recent 3 years		
109-120 months (~9-10 yrs)	1% over most recent 3 years	3% over most recent 3 years		
			+ 40 SEP Scorecard credit points, including: 20 points for Energy Management System	+ 60 SEP Scorecard credit points, including: 35 points for Energy Management System - and - 10 points for Advanced Practices and Additional Energy Performance

Clarification of baseline for Recertification

Year 0 2012	Year 1 2013	Year 2 2014	Year 3 2015
Baseline Period	Achievement Period - Initial Certification (3 years) Required EP improvement: Bronze $\geq 1.0\%$, Silver $\geq 5.0\%$, Gold $\geq 5.0\%$ + 40 points, Platinum $\geq 5.0\%$ + 60 points 7.2% EP improvement verified		

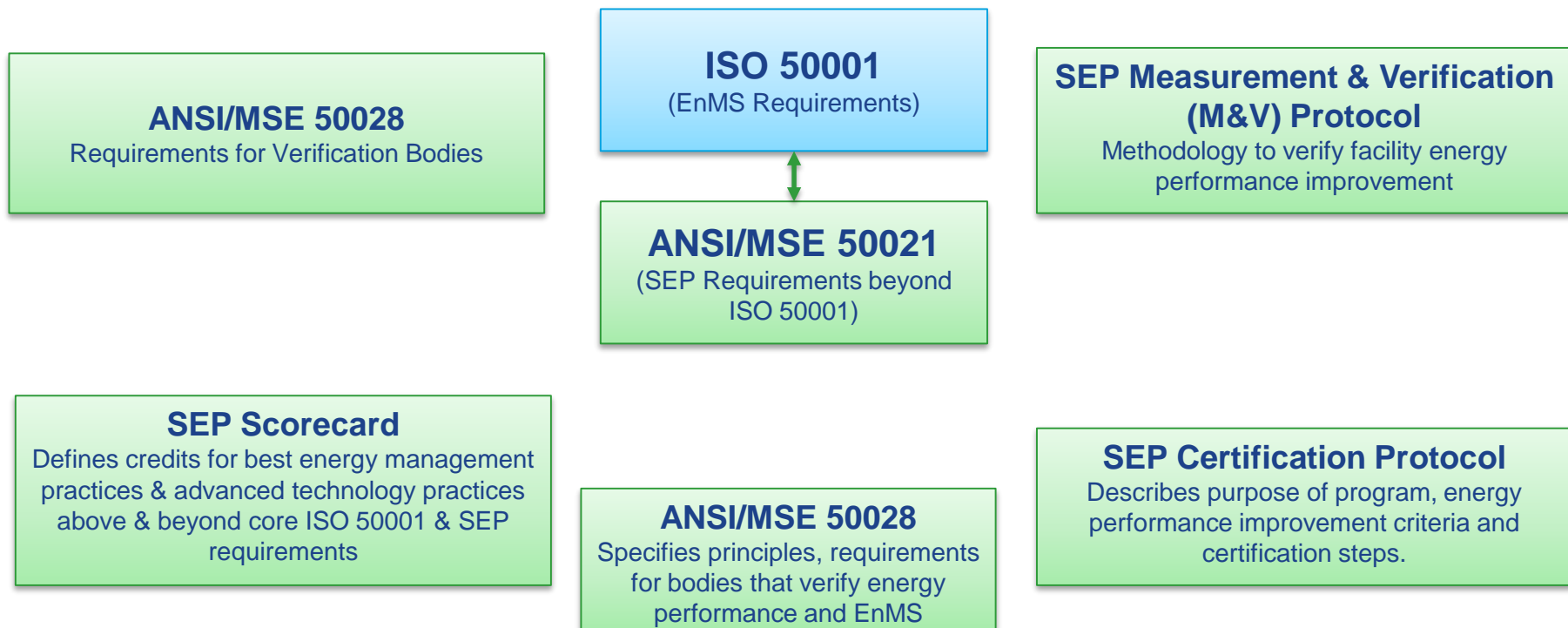
Option 1: Use the last reporting period as the new baseline period.

Reporting Period for Initial Certification 2015			
Baseline Period 2015	Year 4 2016	Year 5 2017	Year 6 2018
Baseline Period for Recertification	Achievement Period - Recertification (3 years) Required EP improvement: Bronze ≥ 1.0%, Silver ≥ 3.0%, Gold ≥ 3.0% + 40 points, Platinum ≥ 3.0% + 60 points		
			Reporting Period for Recertification 2018

Clarification of baseline for Recertification

Year 0 2012	Year 1 2013	Year 2 2014	Year 3 2015	Year 4 2016	Year 5 2017	Year 6 2018
Baseline Period	Achievement Period - Initial Certification (3 years) Required EP improvement: Bronze ≥ 1.0% Silver ≥ 5.0% Gold ≥ 5.0% + 40 points Platinum ≥ 5.0% + 60 points 7.2% EP improvement verified			Option 2: Keep the previous baseline as long as the total achievement period is ten years or less		
Baseline Period	Achievement Period - Recertification (6 years) Required EP improvement is 3.0% over the 7.2% = 10.2% (1.0% for Bronze = 8.2%): Bronze ≥ 8.2% Silver ≥ 10.2% Gold ≥ 10.2% + 40 points Platinum ≥ 10.2% + 60 points					
			Reporting Period for Initial Certification 2015			Reporting Period for Recertification 2018

SEP Standards and Protocols



The SEP documents have been updated for SEP 2017

Key Changes in SEP 2017

SEP Certification Protocol	SEP M&V Protocol	SEP Scorecard
Now only one pathway	Scoring system moved to Certification Protocol	Only used with Gold & Platinum levels
Bronze Level added (1% in 3 years)	Enhanced energy accounting with diagrams	2 new Advanced Practice credits, total of 25 AP points
Scorecard for Gold & Platinum only	Primary & delivered energy terminology added	New credit for Voluntary cost / Benefit form
1-10 year initial achievement period	Bottom-up reconciliation factor added	Energy Management System (EM) credits reduced from 70 to 68 points
Initial performance improvement varies, 5% - 16%	Enhanced table on energy multipliers (Annex B)	Format change – removed prerequisites; removed technologies & strategies
Bottom-up registry requirement	Nomenclature changes	Energy balance credit requires 90%
Recertification requirement: 1% in most recent 3 years for Bronze; 3% in most recent 3 years for Silver, Gold, & Platinum; scorecard credit points for Gold & Platinum		Energy demand mgt. credit removed

Key Changes in SEP 2017

ANSI/MSE 50021 2016

Now contains all the definitions

List of equipment, systems processes cover 80% energy consumption

Training of energy team recorded

Recertification period is 36 months

Internal audit of SEP conducted at least once every certification cycle

Additional detail on SEP inputs to management review

SEP scope & boundary required for each facility in ISO 50001 enterprise

ANSI/MSE 50028 2016

Separation of ISO 50001 and SEP certification audits allowed

SEP Verification Body not required for ISO 50001 certification

30-day pause added to stage 2 audit

Audit day table for PV clarified

Audit days adjusted when VB does not certify ISO 50001 system

Confidentiality clarified

6-month grace period to reinstate an expired ISO 50001 certification does not extend to SEP certification

SEP 2017: How to Participate

Can my facility get certified to the SEP 2017 program today?

- Yes, as long as your SEP Verification Body's application to ANAB to update to SEP 2017 has been approved. Check with your SEP Verification Body to ensure they apply to ANAB to update to SEP 2017.

My facility plans to get certified soon. Do I have to use SEP 2017?

- You may seek certification to the SEP 2012 program until June 2019, though DOE encourages facilities to take advantage of the improvements offered in SEP 2017.

My facility is already certified to SEP 2012 and planning for recertification. Do I have to use SEP 2017?

- You may seek certification to the SEP 2012 program until June 2019, though DOE encourages facilities to take advantage of the improvements offered in SEP 2017.

Impact of ISO 50001:2018 Update

International Standard Revision in 2018

- The International Organization of Standardization (ISO) anticipates publishing the revision of ISO 50001 in 2018.
- All ISO 50001 certified facilities will be required to transition to ISO 50001:2018 revision
- The SEP program will be updated accordingly with an anticipated release in the summer of 2018. SEP 2018 will:
 - Build on the SEP 2017 program updates
 - Expand applicability of SEP to all industrial, commercial, and public facilities
 - Incorporate additional feedback received from SEP end users
- To prepare for the SEP 2018 update, a program review group of SEP users and stakeholders will be established to review and provide input on proposed improvements through a consensus process. DOE will issue invitations to populate this group.

Additional DOE Voluntary Programs to Support ISO 50001

DOE's ISO 50001 Objectives

Create an environment in the U.S where markets drive voluntary implementation of ISO 50001

- Accelerate market acceptance, awareness, and adoption of ISO 50001
- Offer DOE technical resources and tools to enable market best practice deployment
- Prepare companies for gradual progression towards ISO 50001 certification through supportive programs
- Establish ISO 50001 as a cost effective, brand impacting pathway for sustained, cost-effective, energy efficiency improvement



All Nissan's vehicle assembly plants in the United States are ISO 50001 certified

Voluntary Options for ISO 50001 Implementation & Verification

DOE builds market to prepare companies for gradual progression towards ISO 50001 certifications!



International
Organization for
Standardization

DOE's Superior Energy Performance program fills gap in the market for verified energy performance improvements from ISO 50001 implementation



DOE works to boost market availability of qualified organizations and competent professionals to provide accredited certification to ISO 50001

DOE's 50001 Ready self-attestation program prepares organizations for certification

Recognition for implementation of an ISO 50001-based energy management system using the guidance in the DOE 50001 Ready Navigator tool

ISO 50001 Certification

Recognition for ISO 50001 Certification and 3rd Party Verification of Energy Performance Improvements

50001 Ready Prepares Facilities for Certification

50001 Ready Designation	Superior Energy Performance® (SEP™) Certification
<ul style="list-style-type: none">• A path to self-attest to implementing an energy management system using ISO structure• DOE recognition of “readiness” to pursue next steps: ISO 50001, SEP• “50001 Ready Navigator” online guide will assist facility energy managers through the process and evaluate their facilities’ energy data• Energy Performance Indicator Tool Lite consistent with SEP M&V Protocol	<ul style="list-style-type: none">• ISO 50001 and DOE SEP certification with 3rd party verification of energy improvement• 40+ SEP certified North American facilities including 6 hotels• Working with wastewater cohort and additional pilot projects• DOE long involvement in ISO 50001 development

DOE Programs fulfill current market gaps while designed to become self-sustaining market programs.

Conclusions

Conclusions

- SEP 2017 modifications simplify SEP program documents and requirements based on input from stakeholders. Updated versions of the SEP standards and protocols are now available.
- Facilities may seek certification to the SEP 2017 as long as their SEP Verification Body has submitted an application to ANAB to update to SEP 2017
- Users are encouraged to take advantage of the improvements offered by the SEP 2017 program. However, organizations may choose to certify or recertify to the SEP 2012 program until June 2019.
- The ISO 50001 standard will be revised in 2018.
 - SEP will undergo another update in 2018 to reflect ISO 50001:2018 and incorporate additional improvements that build on the SEP 2017 updates. A program review group of SEP stakeholders will provide input on those revisions through a consensus process.
- DOE's 50001 Ready self-attestation program prepares organizations for next steps, such as certification to ISO 50001 and SEP

Contact info



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